



Inflation Targeting

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I am delighted to speak with Junior Achievement of Arkansas. I cannot report a story about how Junior Achievement (JA) got me off to a good start, but I do have a personal story—from my oldest son, Will. When I accepted this speaking invitation, I asked Will to reflect on his JA experience, and here is the paragraph he sent me.

I was involved in Junior Achievement when I was in 8th grade. Most entrepreneurial-minded kids I knew gained their business experiences on paper routes, painting houses or the like. But I was drawn to JA's concept of teaching the basics of business and figuring out how to mass-produce something. Little did I know where it would lead me. In my JA group, we assembled wooden coat pegs on boards and painted them up nicely. I quickly learned that building a single coat-rack widget is not so hard, but leading a handful of people to make 50, with quality, is much harder. And that getting all of them sold for a profit is even harder yet. I can't say exactly which of the skills I learned at JA helped me end up running the Windows business at Microsoft. I was a big dreamer back then, but even I would not have dreamt that I would someday be leading a team of 3,000 professionals that create software that is used in 169 countries around the world and powers 200,000,000 new PCs sold every year. JA, thanks for the jump-start!

Will is a senior vice president for Microsoft's Windows client business. Needless to say, I am immensely proud of him. I don't know the list, but will bet that numerous other JA alumni are in very responsible positions today.

I find computers a bit mysterious, and I know that many think that monetary policy is even more mysterious. Federal Reserve officials used to delight in adding to the mystery, but today advances in macroeconomic theory have made clear the importance of central bank transparency to an effective monetary policy.

Since coming to the St. Louis Fed in 1998, I have spoken often on the subject of the predictability of Federal Reserve policy, emphasizing that predictability enhances the effectiveness of policy.¹ Predictability has many dimensions, but one is certainly that the market cannot predict what the Fed is going to do without a deep understanding of what the Fed is *trying* to do.

The Fed has stated for many years that a key monetary policy objective is low and stable inflation. I believe that adding formality to that objective can clarify what the Fed does and why. That is my topic today.

Before proceeding, I want to emphasize that the views I express here are mine and do not

¹ See Poole (1999) for the first of a series of speeches on this topic.

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THE FRAMEWORK

The Federal Open Market Committee (FOMC) has the responsibility to determine monetary policy. The Committee implements policy by setting a target for the federal funds rate. Policy predictability does not mean that the public or the markets can successfully forecast the target federal funds rate next week, next month, or next year. The target rate is based on policymakers' current information and best estimate of future economic events; the key observation is that incoming information may depart from the best estimate and indicate that the target funds rate needs to be changed to achieve policy objectives. What we must mean by *perfectly predictable* is that the public and the markets are not surprised by the Fed's *response* to the latest economic information, understanding that the information itself is not predictable.

Although new information creates a steady stream of mostly minor surprises, the FOMC ought to be clear about what it is trying to accomplish. At present, most members of the Committee would probably be pretty close together on how to state the inflation goal. A benefit of greater formality in defining the inflation goal is that individual FOMC members would have a clearer idea as to what the inflation objective is.

To illustrate this point, I have often said that my preferred target rate of inflation is "zero, properly measured." That is, allowing as best we can for measurement bias, which might be in the neighborhood of half a percent per year for broad measures of consumer prices, I favor literally zero inflation. Given measurement bias in price indices, I might state my goal as inflation between 0.5 and 1.5 percent as measured by the price index for personal consumption expenditures (the PCE price index). Others prefer a somewhat higher rate of inflation, perhaps in the range of 1 to 2

percent as measured by the PCE price index. Still others might favor a different target range, with a different midpoint and/or a wider or narrower range. If the FOMC decides to discuss inflation targeting, all dimensions of specifying a target will be considered carefully.

Why does precision on a target range matter? Consider a situation in which the actual rate of inflation is 1.5 percent. Those favoring a target range of 1 to 2 percent would say that the policy stance is just right; inflation is in the exact center of the target range. I, given my preferred target range, would argue for a somewhat more restrictive stance, to move the inflation rate down toward the center of my preferred range. The difference between these two target ranges is small, and yet that difference might be enough to call for a somewhat different policy stance.

Obviously, the Fed cannot simultaneously pursue two different inflation goals, and therefore there is every reason for the Committee to agree on a common objective. An agreed-upon common objective is much more important than the small difference between my own preferred objective and the range of objectives I believe are favored by others.

If the FOMC were to decide on a common objective, then the Committee could communicate it to the general public. Discussion of the formal, numeric objective and what it means would help markets to better understand monetary policy and would make policy more predictable. However, many details matter and an inflation target will not be a source of increased clarity unless the details are specified appropriately. So, let's talk about those important details. To simplify the language, I'll refer to a publicly announced, specific numerical target range for inflation as a "formal" inflation target or objective.

WHAT IS INFLATION?

If the FOMC is going to adopt a formal inflation objective, we need to agree on what "inflation" is. However inflation is measured, it is important to distinguish between "high frequency" inflation, which central banks have little control over, and "low frequency" inflation, which central banks

can control. High-frequency inflation is the rate of change in the price level over relatively short time periods—months, quarters, or perhaps even a year. Low-frequency inflation is an economy-wide, systemic process that is affected by past, present, and expected future economic events.

Central banks accept responsibility for low-frequency inflation because such inflation depends critically on past and, especially, expected future monetary policy. When I advocate that the Fed establish a formal inflation objective, I am speaking of the low-frequency inflation rate. As a practical matter, low-frequency inflation can be thought of as the average inflation rate over a period of a few years.

SETTING THE TARGET RATE OF INFLATION

The Employment Act of 1946 sets objectives for monetary policy—indeed, objectives for all economic policy.² The Act declares that it is the “responsibility of the Federal Government...to promote maximum employment, production, and purchasing power.” These objectives are reflected in the FOMC’s twin objectives of “price stability” and “maximum sustainable economic growth.” Although useful, these phrases are somewhat vague. For example, in the late 1970s and early 1980s, the Fed pursued the goal of price stability by reducing inflation from double-digit rates; from the mid-1980s into the early 1990s, the goal was to bring inflation down from the 4 percent neighborhood. Over the past decade or so, the goal has come to mean keeping the inflation rate *low*.

But what inflation rate constitutes price stability? Rather than a numerical definition, former Chairman Greenspan preferred a conceptual definition, suggesting that “price stability is best thought of as an environment in which inflation is so low and stable over time that it does not materially enter into the decisions of households and firms.”³ But does Greenspan’s definition require zero inflation?

Because measuring the *price level* is a daunting task, zero *true* inflation and zero *measured* inflation may differ. Prices of individual goods and services change over time, but if some prices are falling and others are rising, then the average of all prices, or the price level, can remain constant. Nevertheless, defining a price index when prices are changing at different rates involves measurement issues that are complicated at both conceptual and practical levels. For a variety of technical reasons that I won’t discuss, the best we can do is to approximate the theoretical construct of the *price level*. Experts believe that price indices, such as the consumer price index (CPI) and the PCE price index, have an upward bias. That is, if the price level were truly unchanged, the price index would show a low rate of inflation.

When asked during the July 1996 FOMC meeting what level of inflation does not cause distortions to economic decisionmaking, Chairman Greenspan responded, “zero, if inflation is properly measured.”⁴ Greenspan’s view that the theoretically correct definition of price stability is zero inflation stems from his belief that economic growth is maximized when the price level is unchanged on average over time.⁵ While I believe that there is a virtual consensus that the economy functions best when the theoretically correct measure of inflation is “low,” not everyone agrees with Greenspan that true price stability—a zero rate of inflation properly measured—is the best target for the Fed. For a variety of reasons, some economists believe that the economy functions best when inflation correctly measured is “low” but not zero.

While the goal of price stability is specific in both the Federal Reserve Act and the Employment Act of 1946, some suggest that the FOMC lacks the authority to establish a numerical inflation objective. They claim that only Congress has this authority. That Congress has the power to estab-

³ Greenspan (2002, p. 6).

⁴ Transcript of the FOMC meeting held on July 2-3, 1996, p. 51.

⁵ For completeness, I note that Friedman (1969) argued that the optimal rate of inflation was negative. Specifically, he suggested that economic welfare was maximized when the nominal interest rate was zero. This requires that the inflation rate is equal to negative of the real interest rate.

² See Santoni (1986) for a discussion of the creation of the Act.

lish the goals of economic policy is indisputable; however, it does not follow that the FOMC does not have the authority to adopt a formal inflation objective as part of implementing its broad congressional mandate. It is common practice for Congress to establish objectives and guidelines and leave it up to the agency responsible for meeting those objectives to fill in the details.

The real question is this: Should the FOMC announce what its inflation objective is? Answering this question is simple in principle. If announcing a specific, numerical inflation objective enhances the efficacy of monetary policy, then the answer is yes. If doing so reduces the efficacy of monetary policy, the answer is no. I believe the answer is yes for a variety of reasons.

THE CASE FOR AN INFLATION TARGET

I have already pointed out that a formal inflation goal should improve the coherence of internal Fed deliberations by focusing attention on *how* to achieve an agreed goal rather than on the goal itself. Adopting and achieving a formal inflation objective should reduce risks for individuals and businesses when making long-term decisions.

Because the benefits of price stability are indirect and diffuse, they are difficult to quantify. One area where the benefits of price stability are most apparent is the long-term bond market. It is not surprising that the 10-year Treasury bond yield has generally drifted down with actual and expected inflation since the late 1970s. The reduction in long-term bond yields reflects market participants' expectations of lower inflation and their increased confidence about the long-term inflation rate. Moreover, the volatility of the market's expected rate of inflation, measured by the spread between nominal and inflation-indexed 10-year Treasury bond yields, has trended down since the late 1990s, suggesting an increased confidence in the Fed's resolve to keep inflation low. I anticipate that the adoption of a formal inflation objective would result in some, probably

modest, further reduction in the level and variability of nominal long-term bond yields.

Adopting a formal inflation objective, and success in achieving that objective, will also enhance policymakers' ability to pursue other policy objectives, such as conducting countercyclical monetary policy. I suspect that some of those who oppose a specific inflation objective are concerned that doing so will cause policymakers to become what Mervyn King, Governor of the Bank of England, has colorfully termed "inflation nutters." King (1997) is referring to policymakers who aim to stabilize inflation, whatever the costs. I believe that just the opposite has happened.

The debate is fundamentally about the relationship between the low-inflation objective and the high-employment objective. Even before British economist A.W. Phillips published research in 1958 that gave rise to what quickly came to be called the Phillips curve, many economists believed that there was a negative relationship between inflation and unemployment—i.e., lower inflation resulted in higher unemployment. Some preferred to think of causation as going the other way around—that higher unemployment resulted in lower inflation.

The inflation-unemployment trade-off was thought to be permanent. Society could have a permanently lower average unemployment rate by accepting a higher average rate of inflation. In the late 1960s, Milton Friedman (1968) and Edmund Phelps (1967) challenged the idea of a permanent trade-off by making the theoretical argument that the Phillips curve must be vertical in the long run in a world where economic agents are rational. Subsequent evidence confirmed the Friedman-Phelps view, and few economists today believe that there is any long-run trade-off.

A vertical long-run Phillips curve does not imply that one long-run inflation rate is as good as any other. Rather, the dynamics of the Friedman-Phelps theory imply that inflation would accelerate continuously were policymakers to pursue a policy of keeping the unemployment rate permanently below its natural, or equilibrium, rate. This equilibrium rate came to be called the NAIRU—the nonaccelerating inflation rate of unemployment.

The Friedman-Phelps theory demonstrates why a policy of keeping the unemployment rate permanently below its natural rate is futile. It does not tell us the inflation rate that maximizes social welfare, which I will call the *optimal* inflation rate. Economic theory demonstrates why inflation is costly, and worldwide experience demonstrates that “high” inflation and “slow” economic growth appear to be inexorably linked. Everyone acknowledges that, beyond some rate, inflation reduces economic growth. The goals of price stability and maximum sustainable economic growth are not substitutes, as implied by the original Phillips curve, but complements. Monetary policymakers can make their greatest contribution to achieving maximum sustainable economic growth by achieving and maintaining low and stable inflation.

That inflation and economic growth are complements does not imply that policymakers should not engage in countercyclical monetary policy when circumstances warrant. For example, with inflation well contained at the end of the long 1990s expansion, the FOMC began reducing its target for the federal funds rate in January 2001, somewhat in advance of the onset of the 2001 recession. The funds rate target was reduced still further in 2002 and 2003 as incoming data revealed that the economy was responding somewhat more slowly than expected and that actual and expected inflation remained well contained. The funds rate target was eventually reduced to 1 percent and remained there for slightly more than a year.

Those who suggest that adopting a formal inflation objective will cause policymakers to become inflation nutters and, somehow, limit the Fed’s ability to pursue other policy objectives should examine actual experience. Not only did the Fed’s commitment to price stability not prevent it from engaging in countercyclical monetary policy—it facilitated it.⁶ Such an aggressive countercyclical monetary policy as pursued starting in early 2001 would have been unthinkable were it not for the fact that the credibility established over the years since Paul Volcker dramatically altered the course of monetary policy in October 1979.⁷

⁶ For evidence on how inflation interfered with countercyclical policy in the past, see Poole (2002).

I believe that having a formal inflation objective will further enhance the Fed’s credibility and, consequently, its ability to engage in countercyclical monetary policy. The reason is simple. The more open and precise the Fed is about its long-run inflation objective, the more confident the public will be that the Fed will meet that objective. The objective, and the accompanying obligation to explain situations in which the objective is not achieved, should increase the Fed’s credibility.

Because it will be much easier for the public to determine whether the FOMC is pursuing its inflation objective if that objective is known with precision, adopting a formal objective for inflation also will enhance the Fed’s accountability. Having a formal objective makes the Congress’s and the public’s job easier, thereby enhancing accountability. If the FOMC misses its inflation objective, it will have to say why the objective was missed. By the same token, the FOMC will have to explain why it failed to respond to a particular event when inflation appeared to be well-contained within the objective. In essence, having a specific inflation objective will help the public better understand what I have elsewhere called “the Fed’s monetary policy rule.”⁸

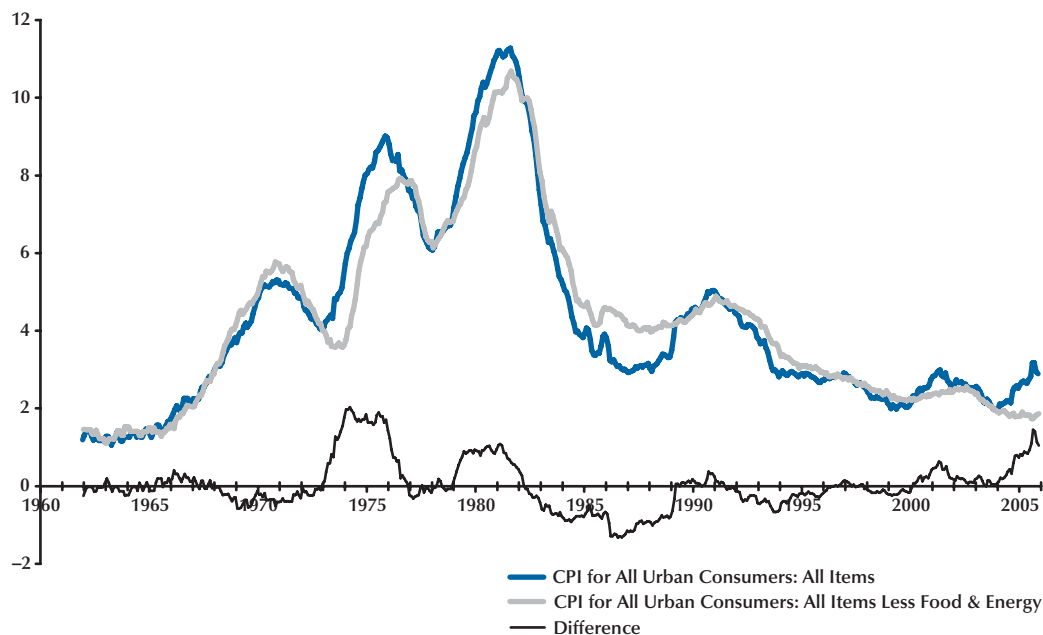
SPECIFYING THE TARGET

That there are differences of opinion about the optimal inflation rate is not a reason for having a fuzzy objective. If there are important differences of opinion within the FOMC on the appropriate target, which I doubt, the Committee ought to resolve those differences and not permit them to be a source of uncertainty.

Because the target should apply to low-frequency inflation, the target needs to be stated in terms of either a range or a point target with an understood range of fluctuation around the point target. The choice is more a matter of the most effective way of communicating the target and what it means than a matter of substance.

⁷ For those interested in understanding the issues that lead up to and succeeded this event, see Federal Reserve Bank of St. Louis (2005).

⁸ Poole (2006).

Figure 1A**CPI and Core CPI 3-Year Moving Averages**

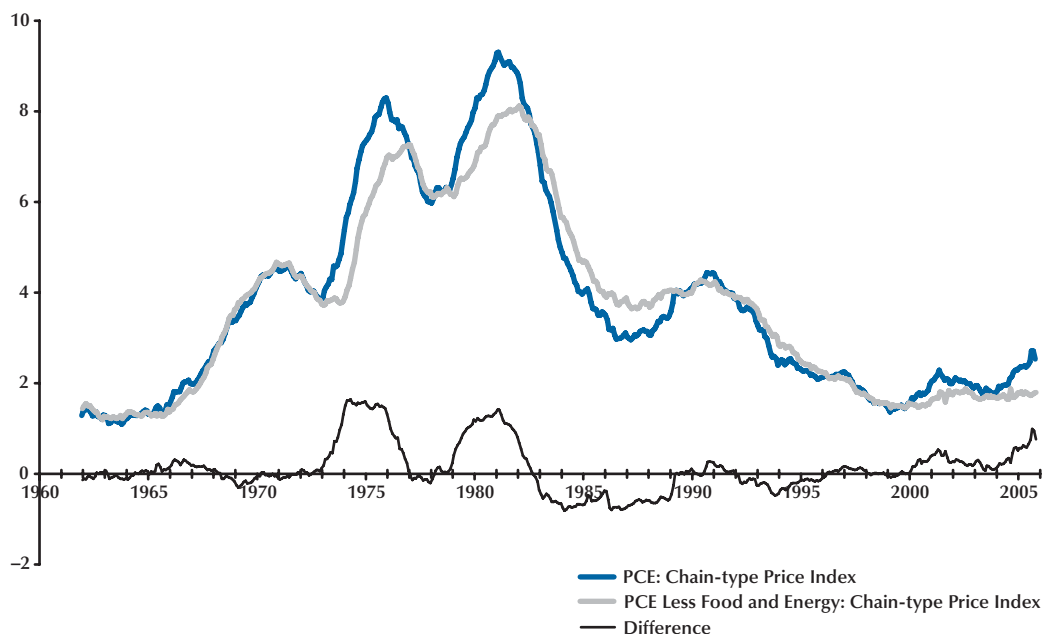
A specific target range, such as 1 to 2 percent annual change in a particular price index, has the advantage of focusing attention on low-frequency inflation. Even here, there could be special circumstances, which the Fed should explain should they occur, that would justify departure from the target. The way the range is expressed interacts with the period over which inflation is averaged. A narrower range would be appropriate for a target expressed as a three-year average than for a year-over-year target.

To understand what such a target means, suppose states were to abolish sales taxes and raise income taxes to offset the revenue loss. The effect of this change in tax structure would be to reduce measured prices. Such a tax change would be a one-time effect—the price level would change when the new tax law took effect but there would not be continuing pressure over time tending to lower prices. Suppose the one-shot price level change took measured inflation outside the target range. With a formal inflation target, the FOMC would have the responsibility of explaining why

a monetary policy response to this target miss would be unnecessary and perhaps harmful.

A formal inflation target needs to refer to a particular price index. That there is no price index that adequately reflects the economy's true rate of inflation is yet another reason given for not adopting a specific inflation objective. My own judgment is that the PCE price index measures consumer prices reasonably well and has some advantages, which can be explained, over the CPI. Moreover, the FOMC could reasonably maintain a rate of increase in this index in a range of, say 1 to 2 percent, on a two-year moving average basis under most circumstances.

Over time, refinements in the price index or introduction of better indices may lead to substitution of another index for the PCE index or justify a change in the target range. The FOMC would then have to explain why it was adjusting the objective or index used to evaluate the objective. The formal target provides a valuable vehicle for explaining an important issue in the conduct of monetary policy. Experience with inflation target-

Figure 1B**PCE and Core PCE 3-Year Moving Averages**

ing in industrial economies suggests that issues of this sort have not been important. The markets are already well informed about such issues—and are becoming increasingly so. Conducting this conversation with the markets will improve the clarity of monetary policy and therefore its effectiveness.

Over the past decade or so the Fed has gravitated to the position of placing primary emphasis on the core rate of inflation, as measured by the PCE price index excluding food and energy. The reason is not that food and energy are unimportant—these are obviously two very important categories of goods. Rather, experience indicates that food and energy prices are subject to large short-run disturbances that are beyond the ability of monetary policy to control without policy responses having adverse consequences for general economic stability. If we examine total and core price inflation over three years, say, most experience is that the averages are quite close. That is, food and energy prices display substantial short-run variability that yields large changes in the

short-run rate of inflation in overall price indices without affecting longer-run inflation. (See the charts in Figure 1, which track the CPI and PCE indices from 1960 through 2005.)

HOW MUCH DIFFERENCE WOULD A FORMAL INFLATION TARGET MAKE?

There is a large and growing literature comparing the performance of inflation-targeting countries with their non-inflation-targeting counterparts, especially the United States. This literature finds few statistically significant differences between countries that have established inflation targets and those that have not. This finding has led some analysts to argue, “if it isn’t broke, don’t fix it.” There are a number of reasons why such findings are not too surprising: The benefits from price stability are diffuse and difficult to measure; the industrialized economies are highly interconnected, so that some of the

benefits to countries that have inflation targets spill over to those that do not; the growth rate effect is small, so it will take a long time before one can distinguish a statistically significant growth-rate effect. Finally, many of the countries that adopted an inflation target had a history of inflation. Adopting a target was a manifestation of a societal commitment to bring down and keep down the rate of inflation.

Given that the United States pursued a successful anti-inflation policy after 1979 without a formal target, and established a high degree of monetary credibility, there is no reason to expect to observe measurable effects from adopting a target now. Nevertheless, I cannot help reflecting on other cases in which low inflation prevailed but did not last. Consider U.S. policy errors of the type that occurred in the mid-to-late 1920s and in Japan in the late 1980s. In both of these instances, policymakers failed to respond to deflation. I believe that a formal inflation target would have focused attention on the policy mistake leading to deflation and would have increased public pressure on the central banks to respond more forcefully.

Similarly, the Fed failed to tighten policy appropriately in the late 1960s as inflation began its ascent. In the early 1960s, as today, the Fed enjoyed a high degree of market confidence and inflation expectations were low. At that time, only a small minority of economists thought that monetary policy was “broken” in any important way, and thus the case for “fixing it” was minimal. Would a formal inflation target in 1960 have been an ironclad guarantee that the Great Inflation would never have happened? Surely not. Would it have helped? I believe that the answer is surely yes.

CONCLUDING REMARKS

Inflation targeting is an approach to monetary policy adopted by many countries, in most cases in the context of a societal effort to address undesirably high inflation. The United States, fortunately, is not dealing with an inflation problem at this time. The case for adopting an inflation target is that it should help to avoid inflation in the future and should increase the effectiveness of monetary policy in a low-inflation environment.

The increase in policy effectiveness should arise from two consequences of a formal system of inflation targeting. The first consequence is that the market will likely hold inflation expectations more firmly. The second, and probably more important, consequence is that the inflation-targeting framework provides a vehicle, or structure, within which the FOMC can better explain its monetary policy actions and the policy risks it must face. Inflation targeting should increase accountability not so much by keeping score of target hits and misses but rather by encouraging a much deeper understanding of how monetary policy decisions are made. That understanding depends on continuing FOMC communications with the markets and the public and FOMC willingness to listen as well as talk.

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